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MEMORANDUM

TO: Crystal Rippy, Engineer Associate
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Bureau of Land and Waste Management

FROM: Cynde Devlin, Hydrogeologist CD
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Division of Hydrogeology
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DATE: October 20, 1998

RE: Savannah River Site (SRS)
Aiken County
SC1 890 008 989

Evaluation of the status of the United States Department of Energy (US DOE) Savannah River Site (SRS) under the RCRIS Corrective Action Environmental Indicator Event Codes CA 725 and CA750

As requested, an evaluation for those portions of the RCRIS Corrective Action Environmental Indicator Event Codes pertaining to groundwater and surface water has been completed. The findings of the evaluation are found below in the format provided by EPA. The remaining media which require evaluation (sediments, soils, and air) will be evaluated separately by the Division of Hazardous and Infectious Waste Management.

I. PURPOSE OF MEMO:

This memo is written to formalize an evaluation of the Savannah River Site's status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

1) Human Exposures Controlled Determination (CA 725)
2) Groundwater Releases Controlled Determination (CA750)

The application of these event codes at SRS adheres to the event code definitions found in the Data Element Dictionary for RCRIS.

Concurrence by the RCRA Section Managers is required prior to entering these event codes into RCRIS.

II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725):

There are five (5) national status codes under CA725. These status codes are:

1) YE Yes, applicable as of this date.
2) NA Previous determination no longer applicable as of this date.
3) NC No control measures necessary.
4) NO Facility does not meet definition.
5) IN More information needed.

The first three (3) status codes listed above were defined in the January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in the June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725 The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO, and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO, and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This particular CA725 evaluation is the first evaluation performed for SRS. Because assumptions have to be made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures, this memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for SRS.

The following discussions, interpretations, and conclusions on contamination and exposures at

the facility are based on the following reference documents:

1) 1992 RCRA Part B Permit Renewal Application, Vols. II-VII, XIV, and XXIII

2) SRS Environmental Report for 1997, WSRC-TR-97-00322

3) SRS Environmental Report for 1997 Summary, WSRC-TR-97-00323

4) SRS Environmental Data for 1997, WSRC-TR-97-000324

5) 1988 RCRA Part B Permit Application, Vol. X

6) H-Area Hazardous Waste Management Facility Corrective Action Report - Third and Fourth Quarter 1997, dated March 1998

7) F-Area Hazardous Waste Management Facility Corrective Action Report - Third and Fourth Quarter 1997, dated March 1998

8) RFI/RI Work Plan for the F and H Areas Inactive Process Sewer Lines, dated March 1992

9) Mixed Waste Management Facility Groundwater Monitoring Report - Fourth Quarter 1997 and 1997 Summary, dated March 1998

10) Work Plan RFI/RI Report for Old Radioactive Waste Burial Ground (ORWBG), Vols. I and II, Rev. 0, dated November 1997

11) Burial Ground Complex Field Investigation Preliminary Data Report #1, dated January 1995.

12) Burial Ground Complex Field Investigation Preliminary Data Report #2, dated January 1996

13) Lower Savannah District's Environmental Surveillance and Oversight Program's analytical results of surface water tritium sampling (electronic format)

14) DOE/SRS-SCDHEC Memorandum of Agreement, dated April 8, 1985 and Amendment, dated May 5, 1988

15) Settlement Agreement 87-27-SW, dated May 1, 1987 and Amendment, dated June 14, 1989

III. FACILITY SUMMARY:

IV. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES:

Contamination at SRS is evaluated on a media-by-media basis. This memorandum only includes an evaluation of groundwater and surface water for plausible human exposures. The remaining

media, such as sediment, soil, and air, will be evaluated by the Division of Hazardous and Infectious Waste Management.

Groundwater

SRS is located on the Upper Coastal Plain of South Carolina. Underlying sediments consist of unconsolidated sands, clays, and limestone. These sediments are underlain by sandstones and older metamorphic and igneous rock. The sandy sediments contain several productive aquifers interspersed with clay layers. These aquifers discharge to the Savannah River and its associated swamps and tributaries.

Releases from solid waste management units (SWMUs) and/or Areas of Concern (AOCs) have contaminated groundwater at concentrations above relevant action levels such as EPA's Drinking Water Standards (i.e. Maximum Contaminant Levels). According to the *SRS Environmental Report for 1997*, groundwater beneath 5 to 10 percent of the site has been contaminated by industrial solvents, tritium, metals or other constituents used or generated by SRS operations.

The highest concentrations of known groundwater contamination are generally found in the F-Area Seepage Basins, H-Area Seepage Basins and Mixed Waste Burial Complex. Groundwater contamination is also found in other areas of the facility. These areas include A-Area, C-Area, D-Area, K-Area, L-Area, M-Area, N-Area, P-Area, R-Area, Sanitary Landfill, TNX, and the General Separations Areas. Groundwater contamination in these areas consists mainly of chlorinated volatile organics, metals, radionuclides, and tritium.

A-Area and M-Area are located in the northwest portion of the site. M-Area was used for production of nuclear fuels, targets, and other reactor components. A-Area houses administrative and research facilities, including the Savannah River Technology Center. In the A- and M-Area, the water table slopes to the south and southeast toward Tims Branch and unnamed tributaries thereof. The water table also slopes towards low lying swamps adjacent to the Savannah River west of the A- and M-Areas. Most of the water in the upper saturated zone migrates downward toward lower water-bearing zones. Organic constituents are the primary contaminants in this area. The entire contaminant plume covers approximately 3 square miles and is approximately one third of a mile from the SRS property boundary. The concentration of trichlorethylene is approximately 41,000 ug/l in well cluster MSB-2C. This concentration is significantly elevated compared to the groundwater protection standard of 5 ug/l. Remedial efforts for groundwater in the A- and M-Areas, which include capping the basins and extracting and treating groundwater, have altered the groundwater and contaminant flow patterns in the water table aquifer and underlying Lost Lake Aquifer.

C-Area is located in the west-central portion of the facility. The C-reactor achieved criticality in March 1955 and was shut down in 1965. It was placed on cold standby in 1987. Groundwater flow in this area is toward incised creeks in the area. Flow is generally west toward Four Mile Branch. Water from the disassembly basins, which contained tritium, was discharged to reactor seepage basins or surface streams. The burning/rubble pits and basins in this area are also sources of groundwater contamination. Trichloroethene is the most widespread contaminant in

the area. Lead, tritium, and other radionuclides contribute to groundwater contamination in the C-Area.

D-Area is located in the southwest portion of the facility. A large coal-fired power plant and inactive heavy water facilities are located here. TNX is also located in this area. The nearest property boundary is approximately one quarter mile to the west. The water table in D-Area discharges to the Savannah River and nearby swamps along Beaver Dam Creek. There is substantial groundwater contamination near the coal pile runoff containment basin. The groundwater contamination consists of elevated metals, alpha-emitting radionuclides and volatile organics. A second groundwater contaminant plume is emanating from the oil disposal basin. This plume contains lead and volatile organics. The groundwater contaminant plume beneath TNX discharging to the Savannah River Swamp, consists primarily of volatile organics and nitrates. Interim measures have been initiated for remediation of contaminated groundwater in the TNX area.

The General Separations area is located in the central part of the facility. It includes E-Area, F-Area, H-Area, S-Area, and Z-Area. Reactor produced materials are processed in the chemical separations plants in F- and H-Areas. Uranium, plutonium-238, and plutonium-239 are separated from each other and from fission products. Purification and packaging of tritium and storage of fission wastes are also conducted in these areas. The Mixed Waste Management Facility (E-Area), F-Area, and H-Area are located on the groundwater divide between Four Mile Branch and Upper Three Runs Creek. S-Area and Z-Area are located on the groundwater divide between Upper Three Runs Creek and its tributaries to the west. The F-Area and H-Area seepage basins were used to dispose of liquids containing radionuclides, tritium, metals, organics, and nitrates. Radioactive waste has leached into groundwater beneath the H- and F-Area tank farms. Groundwater plumes from the F-Area and H-Areas are discharging radionuclides, metals, nitrates, and tritium into Four Mile Branch. Groundwater plumes from the Mixed Waste Management Facility are discharging volatile organics, radionuclides, and metals to Four Mile Branch. An extensive tritium plume is migrating north from the Solid Waste Disposal Facility toward Upper Three Runs Creek. Groundwater remediation systems have been installed for the F-Area and H-Area seepage basins. The systems include a series of extraction and injection wells. The contaminated groundwater is treated by a specially designed system that reduces all contaminants, except for tritium and nitrates, to concentrations below risk based levels. The extracted groundwater is then reinjected into the affected aquifers. The overall effectiveness of the groundwater remediation systems for the F- and H-Areas has not been determined as of this date. SRS has proposed remedial options for the groundwater plumes emanating from the Mixed Waste Management Facility. Those options are currently under review by the Department.

K-Area is located in the south-central portion of the facility and contains the K-reactor. The reactor achieved criticality in 1954 and was shut down in 1988. The reactor was placed on cold standby in February 1996. K-Area is located between Pen Branch and Indian Grave Branch. Deeper groundwater flows toward the Savannah River. The largest plume in the area is located beneath the disassembly basin and is characterized by elevated concentrations of tritium and volatile organics. Groundwater beneath the ash basin and coal pile runoff area contains gross alpha. Groundwater beneath the burning/rubble pit is contaminated with tetrachloroethene

The L-Area is located in the south-central part of the facility and contains the L-Area reactor. The L-Area reactor achieved criticality in 1954 and continued production through 1968. It then operated from 1985 until 1988. It was placed on standby in 1991. This area includes the chemicals, metals, and pesticides (CMP) pits which are located near the head of Pen Branch. The pits were used from 1971 through 1979 to dispose of drummed oil, organic solvents, pesticides, and metals containing wastes. Most of the contaminated material was removed in 1984 when the pits were excavated, backfilled and capped. A groundwater contaminant plume consisting mainly of TCE is migrating toward Pen Branch. Remedial alternatives are being evaluated for the CMP pits. A second plume is located beneath the reactor building. Increased tritium activity has been recorded in groundwater samples collected southwest of the reactor building Groundwater beneath the disassembly basin and the oil and chemical basin is contaminated with tetrachloroethene and nitrate.

N-Area (Central Shops) is located in the central portion of the facility. This area provides supply, maintenance and other support services, and includes a hydrofluoric spill area, diesel spill area, burning/rubble pits, Fire Department Training Facility and the Ford Building seepage basin. Four Mile Branch, Upper Three Runs Creek and several other incised creeks, located between N-Area and the SRS boundary, are areas of groundwater discharge. Groundwater beneath the Ford Building has been contaminated with metals. Groundwater has also been contaminated with organics due to spills in the area.

P-Area is located in the south-central portion of the facility and includes the P-reactor. The P-reactor achieved criticality in 1954 and was shutdown in 1987. Groundwater beneath the disassembly basin and reactor seepage basin has been contaminated by releases of tritium and lead. Trichloroethene and cadmium are constituents of concern in the groundwater near the burning/rubble pits and coal pile runoff basin.

R-Area is located in the east-central portion of the facility and includes the R-reactor. The reactor achieved criticality in 1953 and was permanently shutdown in 1964. R-Area is near a groundwater divide between Mill Creek and PAR Pond. Groundwater beneath the disassembly basin and seepage basin is contaminated with radionuclides and metals. In 1957, an experimental fuel element failed during a test and the seepage basin received approximately 2,700 Ci of gross beta activity along with strontium-90 and cesium-137. The basin was backfilled in 1957.

Sanitary Landfill and B-Area are located in the eastern portion of the facility. The Sanitary Landfill received office, cafeteria and industrial waste during 1974. Up until 1992, solvent laden rags and wipes used for cleaning, decontaminating and calibrating were disposed of in the landfill. Organic compounds, tritium, metals and other radionuclides are found in groundwater beneath the landfill. An interim groundwater remediation system has been installed in the southern portion of the landfill. This system is targeting the treatment of the organic contaminants found in groundwater beneath the landfill.

Surface Water

SRS is bordered on the southwestern property boundary by the Savannah River for approximately 35 river miles. The Savannah River is used as a source of drinking water for approximately 56,000 residents downriver from SRS. Five major streams from the SRS property feed into the Savannah River. These include Upper Three Runs Creek, Four Mile Branch, Pen Branch, Steel Creek, and Lower Three Runs Creek. All of the streams receive effluents from various onsite facility operations. According to the SRS Environmental Report for 1997, tritium accounts for most of the radioactivity discharged in SRS liquid effluents. The total amount of tritium released directly from process areas to site streams in 1997 is reported to be 1570 Ci. This is a 65% increase from 1996. The increase is attributed to increased operations at Effluent Treatment Facility (ETF) and D-Area. The SRS Environmental Report for 1997 also reports that the total quantity of tritium migrating from the seepage basins and the SWDF was about 6,780 Ci. Therefore, approximately 81% of the tritium released to site streams is due to releases from seepage basins and the SWDF.

Two manmade bodies of water are located on SRS. These include PAR Pond and L-Lake. PAR Pond was constructed in 1958 to provide cooling water for P-Reactor and R-Reactor. PAR Pond is 2,640 acres and approximately 60 feet deep. The 1,000 acre L-Lake was constructed in 1985 to receive heated cooling water from L-Reactor.

SRS and DHEC conduct surface water sampling for radionuclides and inorganics along the Savannah River, streams and ponds on the SRS property. Continuous surveillance for radionuclides is conducted by SRS at Tims Branch, Upper Three Runs, Four Mile Branch, Pen Branch, Steel Creek, and Lower Three Runs Creek. Analyses for radionuclides typically include tritium, gross alpha, gross beta, strontium-89,90, cobalt-60, cesium-137, uranium-234,235, 238, and plutonium-238,239. All streams listed have detections of gross alpha, gross beta, and tritium. According to the SRS Environmental Report for 1997, the average tritium concentration increased in two streams during 1997. Surface water samples from both Steel Creek (18,100 pCi/L) and Pen Branch (115,000 pCi/L) indicate an increase in the average tritium concentration in 1997.

Five surface water locations are sampled along the Savannah River by SRS. The most upstream sample location, RM-160, detected an average concentration of 137 pCi/L tritium. Lead was detected at this location once during the year at a concentration of 0.012 mg/l. The herbicide 2,4-D was detected at this location at a concentration of 0.694 ug/l. The EPA drinking water concentration for 2,4-D is 70 ug/l. Sample location RM-150, located where Four Mile Branch discharges to the Savannah River, detected an average tritium concentration of 1390 pCi/L in 1997. The most downstream sample location, RM-120, detected an average tritium concentration of 1100 pCi/L. The EPA drinking water standard for tritium is 20,000 pCi/l. Sample location RM-140 on the Savannah River had the highest detection of mercury at 0.002 ug/l. Chromium and nickel were also detected at this location.

DHEC's Environmental Surveillance and Oversight Program (ESOP) also collects surface water samples from the Savannah River. Sample location SV-2018 is located near the Steel Creek public boat landing. Tritium concentrations at this location exceeded the EPA drinking water standard of 20,000 pCi/L in March 1997, January 1998, February 1998, March 1998, April 1998

and May 1998. The highest tritium concentration at SV-2018 was 30,374 pCi/L in January 1998. Surface water sample locations SV-2015 and SV-2019 along the Savannah River have also exceeded the EPA drinking water standard for tritium.

Tims Branch, which flows into Upper Three Runs Creek, receives effluent discharges from M-Area and SRTC. The SRS surveillance point located downstream from all releases to Tims Branch detected concentrations of tritium below the nominal short count lower limit of detection (LLD) in 1997. SRS reported gross alpha and gross beta were above detection limits. Nickel, mercury, lead, and chromium were also detected along Tims Branch.

Upper Three Runs Creek receives discharges from the Effluent Treatment Facility, flow from Tims Branch, effluent from the Naval Fuels Facility, and stormwater runoff from F-Area and H-Area. Most of the tritium contamination in Upper Three Runs Creek is released from the Effluent Treatment Facility. The average concentration of tritium detected by SRS in 1997 at the downstream point nearest the Savannah River was 3290 pCi/L. This concentration is 16.5% of the EPA drinking water standard of 20,000 pCi/L. Lead and mercury were detected along Upper Three Runs Creek. The herbicide 2,4-D was detected along Upper Three Runs Creek in 1997 at a concentration of 0.223 ug/l. The highest tritium concentrations detected by DHEC's ESOP program were 30,500 pCi/L (June 1998) and 37,298 pCi/L (February 1997) at surface water sample location SV-325.

Four Mile Branch receives effluent from F-Area, H-Area, C-Area, and groundwater discharges from the F-Area and H-Area seepage basins. According to the SRS Environmental Report for 1997, approximately 53.5 % of the total amount of tritium reaching the Savannah River is transported by Four Mile Branch. The tritium contamination in Four Mile Branch is mainly from the groundwater discharges from the F-Area and H-Area seepage basins along with the Solid Waste Disposal Facility. Tritium concentrations as high as 617,887 pCi/L have been detected by DHEC's ESOP program in Four Mile Branch near the F- and H-Area seepage basins. SRS reports that nitrate levels in Four Mile Branch range between 1 mg/l and 2 mg/l. Lead and nickel were also detected along Four Mile Branch. Groundwater remediation systems have been installed in both the F-and H-Areas, however they are not fully operational at this time.

Pen Branch receives discharges from K-Area and flow from a tributary to Indian Grave Branch. Surface water contamination in this area is largely sourced by discharges from the K-Area percolation field and seepage basins entering Indian Grave Branch. SRS reports that the 1997 average tritium concentration of 115,000 pCi/L in Pen Branch increased from the average 1996 concentration of 62,200 pCi/L. The total concentration for all alpha-emitting isotopes was 0.23 pCi/L. Lead was detected in Pen Branch at a concentration of 0.044 mg/l once during the year. DHEC's ESOP program detected tritium at surface water sampling location SV-2048 as high as 214,316 pCi/L (September 1997).

Steel Creek receives releases from L-Area effluents and tritium from groundwater discharges from the P-Area seepage basins. Releases also occur when P-Area diverts water from PAR Pond to Steel Creek. Overflows from L-Lake enter Steel Creek. SRS reports that the average tritium concentration in Steel Creek in 1997 was 18,100 pCi/L. This is an increase from the average

1996 tritium concentration of 7540 pCi/L. The average gross alpha concentration was 164 pCi/L. Nickel and lead were also detected in Steel Creek during 1997. DHEC surface water sampling location SV-327, near road 125, detected tritium as high as 8698 pCi/L (February 1998) in Steel Creek. DHEC surface water sampling location SV-2018 is located at the Steel Creek Boat Landing (downstream from where Steel Creek actually discharges to the Savannah River). The EPA drinking water standard for tritium of 20,000 pCi/L was exceeded at SV-2018 twelve times from February 1997 to August 1998. The highest concentration of tritium detected during this time frame was 30,374 pCi/L (January 1998).

Lower Three Runs Creek receives overflow from PAR Pond. Historically, releases also occurred from P-Area and R-Area operations. SRS reported that mean concentrations for gross alpha, tritium, cobalt-60, and cesium-137 at sampling location L3R-3 (located where PAR Pond discharges to Lower Three Runs Creek) all were below the lower limit of detection. DHEC's ESOP program has detected tritium at surface water sampling location SV-2053 as high as 3172 pCi/L (February 1997). Location SV-2053 (also known as location LTR-02) is located where Par Pond enters Lower Three Runs Creek.

V. STATUS CODE RECOMMENDATION FOR CA725:

Releases of volatile organics, metals, tritium, and other radionuclides have affected groundwater and surface water quality at SRS. Releases to groundwater are discharging to surface water at levels above MCLs at several locations across the facility. Releases to surface water extend beyond the facility property boundary (for example, tritium concentrations which exceed EPA's drinking water standard of 20,000 pCi/L at the Steel Creek boat landing and other points on the Savannah River). Although, the majority of exceedences were for radiological constituents, there have been isolated exceedences of MCLs for non-radiological constituents (lead in Pen Branch and cadmium in the Savannah River near the mouth of Lower Three Runs Creek). Accessible onsite streams with contamination above MCLs are not posted sufficiently to prevent human exposure.

Evaluation of the remaining media is necessary prior to finalizing a recommended status code for CA725. The remaining media will be evaluated by the Division of Hazardous and Infectious Waste Management.

VI. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750):

There are five (5) status codes listed under CA750:

1) YE Yes, applicable as of this date.
2) NA Previous determination no longer applicable as of this date.
3) NR No releases to groundwater.
4) NO Facility does not meet definition.
5) IN More information needed.

The first three (3) status codes listed above were defined in the January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in the June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater before a "YE" status code can be entered.

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether the groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain areas/units of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO, and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO, and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This evaluation for CA750 is the first formal evaluation performed for SRS. Please note that CA750 is based on the adequate control of all contaminated groundwater at the facility.

The following discussions, interpretations, and conclusions on contaminated groundwater at the facility are based on the following reference documents:

1) 1992 RCRA Part B Permit Renewal Application, Vols. II-VII, XIV, and XXIII

2) SRS Environmental Report for 1997, WSRC-TR-97-00322

3) SRS Environmental Report for 1997 Summary, WSRC-TR-97-00323

4) SRS Environmental Data for 1997, WSRC-TR-97-000324

5) 1988 RCRA Part B Permit Application, Vol. X

6) H-Area Hazardous Waste Management Facility Corrective Action Report - Third and Fourth Quarter 1997, dated March 1998

7) F-Area Hazardous Waste Management Facility Corrective Action Report - Third and Fourth Quarter 1997, dated March 1998

8) RFI/RI Work Plan for the F and H Areas Inactive Process Sewer Lines, dated March 1992

9) Mixed Waste Management Facility Groundwater Monitoring Report - Fourth Quarter 1997 and 1997 Summary, dated March 1998

10) Work Plan RFI/RI Report for Old Radioactive Waste Burial Ground (ORWBG), Vols I and II, Rev. 0, dated November 1997

11) Burial Ground Complex Field Investigation Preliminary Data Report #1, dated January 1995

12) Burial Ground Complex Field Investigation Preliminary Data Report #2, dated January 1996

13) Lower Savannah District's Environmental Surveillance and Oversight Program's analytical results of surface water tritium sampling (electronic format)

14) DOE/SRS-SCDHEC Memorandum of Agreement, dated April 8, 1985 and Amendment, dated May 5, 1988

15) Settlement Agreement 87-27-SW, dated May 1, 1987 and Amendment, dated June 14, 1989

VII. STATUS CODE RECOMMENDATION FOR CA750:

Based on data contained in the documents referenced in Section V and summarized in the groundwater portion of Section IV, releases from SWMUs and/or AOCs have contaminated groundwater at concentrations above relevant action levels such as EPA's Drinking Water Standards (MCLs).

Control measures are not yet effective in controlling migration of contaminated groundwater. Because all groundwater contamination at or emanating from the facility is not controlled, it is recommended that CA750 NO be entered.

VIII. SUMMARY OF FOLLOW-UP ACTIONS:

The solid waste management units at SRS are in varying stages of the corrective action process. Interim actions and final corrective measures have been initiated in many areas of the facility. However, there are solid waste management units for which characterization has not yet been completed. SRS and the Department continue to work through the Federal Facilities Agreement (FFA) program to investigate and fully assess the extensive list of solid waste management units on site. Due to the large number of SWMUs/OUs at SRS, assessment of these units is being conducted through an accelerated schedule under the FFA program.

Corrective action systems are in place for contaminated groundwater at the permitted post-closure

facilities at SRS. However, because not all of the systems are fully operational at this time, hydraulic control has not been achieved for each contaminant plume. Until hydraulic control is achieved for groundwater contaminant plumes such as those associated with the F- and H-Area seepage basins, these plumes will continue to be a major contributor to tritium levels in onsite and ultimately offsite surface waters. The Department continues to work closely with SRS as they try to resolve the problems associated with these systems.